

IN THE SPECIFICATION

Please amend the paragraph beginning at line 1 of page 4 as follows:

--In FIG. 2, the foil elements 14a-14f of LO balun circuit 14 are juxtaposed on opposite sides of insulated substrate 40. The insulated substrate preferably comprises a thin glass, ceramic or Teflon filled printed circuit board upon which the foil elements are printed, etched or otherwise formed by conventional printed circuit techniques. Thus foil elements 14b, 14c and 14e, 14f are on one side of substrate 40 and foil elements 14a and 14d are on the other side. Foil elements 14a and 14b are interconnected via plated-through holes ~~50, 52~~ 46a, 46b and foil elements 14d and 14e are interconnected via plated-through holes ~~54, 56~~ 48a, 48b. It should be noted that, while plated-through holes are in the preferred construction of the invention, other types of interconnections may also be employed. Foil elements 14b and 14c are slightly separated on substrate 40 to form a gap 20a for connection of an isolating capacitance 20 and foil elements 14e and 14f are similarly separated on the substrate to form a gap 18a for connection of an isolating capacitance 18. The gaps and isolating capacitances have no effect on the

operation of the mixer at RF frequencies, and are used to isolate the mixer diodes from DC current flow.--

Please amend the paragraph beginning at line 14 of page 4 as follows:

--Even mode LO current flow proceeds via terminal A, through foil elements 14c,14b, through plated-through holes ~~50,52~~ 46a,46b, through foil element 14a to terminal C. The even mode LO return current flow in the other foil elements proceeds via terminal B, through foil elements 14f,14e, through plated-through holes ~~54,56~~ 48a,48b, through foil element 14d to terminal C. The current flow for the LO is thus seen to be in the same direction in the overlying foil elements and the LO balun circuit 14 exhibits a high impedance between terminals A,B. The combined diode impedance appearing between terminals A,B is reduced to a value about four times smaller at terminals X,Y, thus yielding a convenient impedance value relative to the balun 12 and buffer amplifier 10. Capacitor 22, together with the diode capacitances and the inductance of foil elements 14a-14f, form a low Q (and thus broadband) parallel resonant circuit that is tuned to the center of the LO band. The odd mode RF current flow through foil elements

14a-14f provides for a low impedance return path between terminals A and B and ground, respectively, necessary for the commutation of the RF signal applied to terminal F and alternatively switched through diode pairs 26,30 and 24,28, respectively, to ground.--

Please amend the paragraph beginning at line 1 of page 6 as follows:

--The arrangement of FIG 3 differs from that of FIG 1 in that the diode switching network has been replaced by MESFET or other fast acting type electronic switches 60 and 70, the use of which (in conjunction with a symmetrical LO signal input) also eliminates the need for the LO balun 14. A source of DC bias 50 is provided for the MESFET switches. In particular, the DC bias is supplied to the control electrodes (gates) of the MESFET switches 60 and 70 through resistors 52 and 54. A symmetrical source of LO signal 56 is coupled across the control electrodes of the MESFET switches 60 and 70. An inductor 58 is provided for tuning out the gate capacitances of the switches. An output electrode of each of the MESFET switches 60 and 70 is connected directly to ground and a third electrode of each is connected to point D and to point E, respectively. The

tuned IF balun circuitry 35 is identical to that shown and discussed in the arrangement of FIG 1. A source 65 of RF signal is connected to terminal F that connects to elements 36a and 36b of the IF balun 35. The MESFET switches ~~50 and~~ 60 and 70 may, for example, comprise off-the-shelf devices identified by Infineon, (formerly Siemens) part number CMY 210. The use of the MESFET switches (and other types of equivalent electronic switches) and the use of a symmetrical LO signal simplifies the circuitry (eliminating the need for LO balun 14 in FIG 1 as an RF return path). It will be appreciated that the need for the DC bias source 50 will be determined by the particular implementation of the switching devices that is employed.--